Guide 63

Oilfield Waste Management Facility Inspection Manual

January 2001

Alberta Energy and Utilities Board

Oilfield Waste Management Facility Inspection Manual

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ALBERTA ENERGY AND UTILITIES BOARD
Guide 63: Oilfield Waste Management Facility Inspection Manual

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1 Overview

1.1 Purpose of the Guide

Guide 63: Oilfield Waste Management Facility Inspection Manual was developed to ensure that EUB Field Centre staff carry out oilfield waste management facility inspections in a consistent manner throughout Alberta. The manual and check sheet are also intended to inform industry personnel about what is required to achieve a satisfactory EUB inspection.

The guide is primarily addressed to Field Centre inspectors. It is also intended for use by industry as a guide to what they can expect during a facility inspection.

1.2 What This Guide Contains

This guide describes the role of the EUB Field Centre inspectors and includes the EUB check sheet that inspectors complete for each facility inspected, accompanied by a step-by-step description of how to complete each part of the form.

There are nine appendices:

1) *IL 99-4: EUB Field Surveillance Enforcement Process and Ladder*, which establishes guidelines for EUB enforcement actions when dealing with regulatory noncompliance
2) Operational deficiencies and corresponding levels of noncompliance
3) Recommendations for Completing Inspection Sheets When Handling Complaints (memo from head office Field Surveillance)
4) Equipment Spacing Diagram, illustrating the minimum distances between facility components and various types of equipment as outlined in the Oil and Gas Conservation Regulations
5) Guidelines for the Use of Tank Heaters
6) Facility Identification and Warning Signs, Schedule 12
7) Summary Table of General Requirements for Permanent Storage Facilities
8) Summary Table of Landfill Classifications and Characteristics
9) References and Contacts

1.3 The EUB Inspector's Conduct

The purpose of oilfield waste management facility inspections is to achieve compliance with EUB regulations and ensure safe and efficient practices regarding the storage, handling, and disposal of oilfield wastes.

EUB Field Centre inspectors represent the EUB and must display a positive attitude and fairness to all operators.

Inspectors should request the facility operator's presence during inspections.

Inspectors must comply with company policies whenever the company requires notification prior to entry or if the inspection involves the use of specific safety equipment.

Inspectors must always use a cooperative approach as the first method attempted to achieve company compliance with EUB regulations. Where practical, they should have a brief discussion with the company's senior personnel on site after the inspection. This opportunity should be used to establish contacts, exchange information, discuss deficiencies, enforcement, and follow-up, and enhance relations.

1.4 Safety

Inspectors must refer to EUB *Internal Guide 8: Safety Manual* prior to inspection of any facility and be sure to follow all requirements.

Inspectors should point out any unsafe operating conditions and practices to the operator. If necessary, the inspectors must also advise Alberta Human Resources and Employment, Workplace Health and Safety (formerly OH&S) and/or Alberta Municipal Affairs, Safety Services (formerly Electrical Protection).

1.5 Industry Compliance

The EUB believes that compliance in meeting or exceeding regulations and standards is the responsibility of the energy industry. The EUB expects all industry participants to understand the current requirements and have an infrastructure in place to ensure compliance. However, the EUB also recognizes that on occasion enforcement of regulations will be required to ensure compliance.

The EUB has implemented an enforcement policy to address the business issue of noncompliance with provincial requirements. *IL 99-4: EUB Field Surveillance Enforcement Ladder for Industry Non-compliance* (Appendix 1) defines the enforcement consequences when operators fail to meet requirements and/or regulations. These consequences only escalate to a higher severity when the operator fails to address EUB requirements and requests.

The criteria for determining the level of noncompliance are defined in Appendix 2: Operational Deficiencies. EUB Field Centre inspectors follow these criteria when completing the Oilfield Waste Management Facility Check Sheet and determining the resulting enforcement action.

2 Inspection Guide and Check Sheet

EUB Alberta Energy and Utilities Board

Oilfield Waste Management Facility Check Sheet

A FACILITY NAME | FACILITY LOCATION | APPROVAL NO. | FACILITY CODE

INSPECTION DATE | DISPOSAL WELL LOCATION | TYPE OF FACILITY ☐ (see reverse)

TYPE OF INSPECTION

☐ Initial ☐ Follow up
☐ Surveillance ☐ Audit ☐ Other (Identify)_____

OPERATION AT TIME OF INSPECTION

☐ Operating ☐ Shut Down ☐ Other_____

B **INSPECTION RESULTS (CODE: SATISFACTORY "X", MINOR "U", MAJOR "M", SERIOUS "S")**

MEASUREMENT

1 ☐ Water disposition / measurement
2 ☐ Hydrocarbon disposition / measurement
3 ☐ Solids disposition / measurement
4 ☐ Inlet Waste Composition Verified

GENERAL

5 ☐ Equipment spacing
6 ☐ Flare System / Vapour Recovery
7 ☐ ID and warning signs
8 ☐ Fencing / security
9 ☐ Emissions: ___Odor ___ Smoke
10 ☐ Housekeeping
11 ☐ Noise levels
12 ☐ Spills
13 ☐ Adherence to Board Approvals
14 ☐ Corporate ERP
15 ☐ Record Keeping
16 ☐ Surface Runon / Runoff Control

SPECIALIZED

17 ☐ Injection / Disposal Well Requirements (G-51)
18 ☐ Storage Requirements (G-55)
19 ☐ Waste Management (G-58)
20 ☐ Waste Storage / Transfer Specific
21 ☐ Waste Processing / Cavern Specific
22 ☐ Waste Disposal Well Surface Facility
23 ☐ Landfill Specific
24 ☐ Biodegradation Facility Specific
25 ☐ Thermal Treatment Facility Specific
26 ☐ Other W.M.Technology / Facility
27 ☐ S-Reports

ENFORCEMENT (code Yes "Y", No "N")

28 ☐ Remedial Action Required
29 ☐ Letter to Operator Required
30 ☐ Facility Suspended
31 ☐ Records Review of Operator Compliance

ENFORCEMENT ACTION:

Sastisfactory Inspection (no action required) ☐

Unsatisfactory Inspection (see reverse) ☐

Non-Compliance Level: _____

Consequences for Non-Compliance: _____

C **REMARKS AND COMMENTS:** Ensure the following necessary work is completed and confirmed by the Deadline Date. Contact or fax a copy of this inspection sheet along with your comments to the local EUB Field Centre. Be sure to include your name and phone number. Check all your other facilities in the province for the same deficiency and ensure they are corrected.

_____

_____

_____

_____

_____

_____

_____

Deadline Date: _____

Operator's Name: _____ Inspector's Name: _____

Phone Number: ( ) _____ Phone Number: ( ) _____

Fax Number: ( ) _____ Fax Number: ( ) _____

White copy - Operator Yellow copy - Field Centre Pink copy - EUB Head Office

Alberta Energy and Utilities Board 640 - 5 Avenue SW Calgary, Alberta Canada T2P 3G4

TYPE OF FACILITY

1 = **Waste Storage**
2 = **Waste Transfer**
3 = **Waste Processing**
4 = **Waste Disposal Well / Surface Equipment**
5 = **Cavern**
6 = **Landfill**
7 = **Biodegradation**
8 = **Thermal Treatment**
9 = **Other**

ENFORCEMENT ACTIONS REQUIRED

Minor Level 1
- Local company representative instructed to take corrective action.
- Company must confirm corrective action (**verbally or in writing**) to EUB Field Centre.
- Maximum time to take corrective action = 30 days.

Minor Level 2
- Local company representative instructed to take corrective action.
- Senior company representative with provincial authority must provide in writing why EUB directive not followed and provide an acceptable action plan for following EUB directives in the future, to EUB Field Centre.
- Maximum time to take corrective action = 15 days.

Minor Level 3
- Full or partial suspension of operations.
- Local company representative instructed to take corrective action.
- Senior company representative with provincial authority must provide in writing why EUB directive not followed and provide an acceptable action plan for following EUB directives in the future, to EUB Field Centre.
- Suspension remains in effect until non-compliance is remedied, a documented meeting/discussion is held with senior company representative with provincial authority and the EUB removes suspension (**in writing**).
- Non-compliance added to Corporate Data Information System.

Minor Level 4
- Immediate suspension (full or partial).
- Suspension remains in effect until documented meeting with senior company representative with provincial authority (VP/Pres).
- Senior Company representative with provincial authority confirms compliance at this and all similar facilities in this inspection category.
- Senior Company representative with provincial authority must provide a written acceptable action plan including examination of cause and future prevention plans at this and all similar facilities.
- And/or EUB Corporate Compliance issues closure order, miscellaneous order, and/or refer status for future applications.

Major Level 2
- Temporary suspension, when safe to do so may occur (full or partial) to correct deficiency or alleviate impact or potential impact.
- Local company representative instructed to take corrective action.
- Senior company representative with provincial authority must provide in writing why EUB directive not followed and provide an acceptable action plan for following EUB directives in the future, to EUB Field Centre.
- Company has 30 days to correct operations in same inspection category on a provincial basis.

Major Level 3
- Same as Minor Level 3.
- Company has 15 days to correct operations in same inspection category on a provincial basis.

Major Level 4
- Same as Minor Level 4.

Serious Level 3
- Full or partial suspension of operations when safe to do so.
- Company instructed to take corrective action.
- Company must explain why event occurred, provide written acceptable action plan, and ensure issue/event does not re-occur.
- Company must confirm this and all similar facilities are in compliance.
- Operations remain suspended until non-compliance remedied, EUB accepts action plan and written approval is reviewed from EUB to resume operations.
- Non-compliance added to Corporate Data Information System.

Serious Level 4
- Same as Major Level 4.

Note: **The above listed enforcement action items are a summary from the EUB Field Surveillance Enforcement Ladders as outlined in IL 99-4. Please refer to this IL or contact the local EUB Field Centre for further details.**

The EUB reserves the right to escalate non-compliance issue(s) to any level should conditions warrant.

2 Inspection Guide and Check Sheet

2.1 When to Use the Check Sheet

The EUB inspector must complete an Oilfield Waste Management Facility Check Sheet when conducting an inspection of EUB-approved stand-alone oilfield waste management facilities. Facilities include

- waste storage facilities
- waste transfer stations
- waste processing facilities
- waste disposal wells
- caverns (used for disposal of waste)
- landfills
- biodegradation facilities
- thermal treatment facilities

The inspector must also complete a check sheet if a facility is inspected due to a complaint or report or when the inspector is using the EUB air-monitoring unit. Any noted problems are recorded on the check sheet (see Appendix 3).

2.2 How to Complete the Check Sheet

Note that the check sheet is in abbreviated format: each item on the form may require several items to be inspected.

Record unsatisfactory item(s) in the appropriate box. Not all items on the check sheet must be inspected during every inspection. Mark only those items that are inspected.

The data from this check sheet must be input into the EUB's computer database to create a permanent record. Where multiple approved facilities exist on the same site, ensure that a separate check sheet is completed for each facility.

Leave a copy of the inspection check sheet with the operator after each inspection.

A Facility Identification

Facility Name

Enter the complete name of the facility, as indicated on the facility approval.

Location

Enter the facility LSD, section, township, range, and meridian, using the Dominion Land Survey System described in *Guide 59,* Appendix 2.

Approval Number

Enter the waste management facility approval number (the code "WM," followed by a three-digit number).

Facility Code

Enter the production accounting facility code, as shown on the S-25 statement.

Inspection Date

Enter the date of the field inspection.

Disposal Well Location

If applicable, enter the unique well identifier of the well to which the waste management facility disposes produced water. The well location may be identified on the Waste Facility Approval.

Type of Facility

The type of facility is identified on the Waste Facility Approval. Enter one of the following codes:

1 — Waste storage
2 — Waste transfer
3 — Waste processing
4 — Waste disposal well/surface equipment
5 — Cavern
6 — Landfill
7 — Biodegradation
8 — Thermal treatment
9 — Other

Type of Inspection

Check one of the following

Initial — An inspection not considered a follow-up.

Follow-up — An inspection performed due to an unsatisfactory initial inspection. All follow-ups regarding minor unsatisfactory items are to be done by phone whenever possible. Serious and major unsatisfactory items must be followed up with a physical inspection.

Check one of the following

Surveillance — A routine field inspection.

Audit — A complete audit of the operator's records, usually conducted by Compliance and Operations Branch, Waste Section.

Other — Any other type of inspection, including inspection of a suspended facility, a complaint-driven inspection, or an incident investigation.

Operation at Time of Inspection

Check the appropriate box indicating the operation status at the time of inspection:
Operating — Facility is operating in a normal manner.
Shut Down — Facility is not operating.
Other — Facility is suspended, abandoned, dismantled, or under construction.

Depending on the type of inspection or the type of facility, many of the boxes in this section may not be applicable. Do not check a box if it is not applicable or not inspected. All items inspected, except those in the Enforcement category, must be marked "X" for satisfactory, "U" for minor unsatisfactory, "M" for major unsatisfactory, or "S" for serious unsatisfactory.

Items in the Enforcement category must be marked "Y" for yes or "N" for no. See Appendix 2 for operational deficiencies and Appendix 1 for details of major, minor, and serious unsatisfactory items as outlined in the EUB Field Surveillance enforcement ladders.

Measurement

Complaints regarding inaccurate measurement

EUB inspectors must notify the investigations coordinator in the EUB's Calgary office when staff receive a complaint alleging that inaccurate production data are being reported or when staff discover inaccuracies during an inspection. Do not contact the operator/ licensee until the investigation is complete. Staff must treat all situations of this nature as confidential and restrict access to information to the investigation coordinator and the field team leaders, unless advised otherwise.

Liquid and solid wastes received and disposed, as well as hydrocarbon for shipping, must be properly measured and reported, as required by the Oil and Gas Conservation (OGC) Regulations, Sections 14.010, 14,020, 14.030, 14.070, 14.080, 14.090, 14.100, 14.140, 14.180, 14.190, and 14,200 when applicable. The EUB inspector must ensure that the condition of the metering equipment conforms to the regulations. Product disposition must be delivered to an authorized facility.

For each item inspected, enter the applicable code (X, U, M, or S).

1. **Water disposition/ measurement**

   Measurement and operation are in accordance with the OGC Regulations, Sections 14.140, 14.180, 14.190, and 14.200.

2. **Hydrocarbon disposition/ measurement**

   Shipped hydrocarbon product is measured using appropriate methods (e.g., metering devices, tank gauge), in accordance with the OGC Regulations (Sections 14.100, 14.120, and 14.180 and API *Chapter 3.1* [formerly API Standard 2545]).

3. Solids disposition/ measurement	The volume of solids received, processed, and disposed are measured or accurately estimated.
4. Inlet waste composition verified	Procedure in place to verify composition of incoming waste stream. A sample is taken from each load (or group of loads if there are numerous loads from the same site). Where appropriate, wastes are centrifuged to determine proportionate quantities of each component. Sample containers are of suitable type, properly labelled, and kept in an enclosed container in a secure location.

General

The following "general" inspection items are common to most, if not all, waste management facilities. While some of these inspection items are covered in various sections of *Guide 55* and/or *Guide 58*, they are of sufficient importance to note here and to avoid duplication in boxes 18-26.

Prior to conducting an inspection, the inspector should become familiar with the operation and review the facility's history for problems and complaints.

The equipment used and practices employed at an oilfield waste management facility depend on the purpose of the facility. The EUB does not dictate what equipment an operator must use; however, the operator's application to construct and operate a facility must describe the proposed equipment, and the EUB approval issued is based on the operator's proposal. An initial inspection is done to ensure the equipment is installed as licensed and the facility is operated as described in the application. All further inspections are conducted to ensure process modifications are not undertaken without approval, equipment is operating as approved, only approved types of waste are accepted and processed, and upgrades are done to conform to new regulations.

5. Equipment spacing	Is in accordance with the OGC Regulations, Sections 8.030(2), 8.080(2)(3), and 8.090. See Appendix 4 for details. Tank heaters in oil tanks meet the criteria identified in Appendix 5.
6. Flare system/vapour recovery	Any volume of gas directed to a flare stack is burned in accordance with the OGC Regulations, Section 8.080, is used for energy generation, or is conserved. (Flaring to earthen pits is prohibited at all new facilities constructed after July 1, 1996. See *IL 96-4* for further detail.) Flare stack design and operation are in accordance with EUB *Guide 60*, Section 7.

All sour gas is flared in accordance with the OGC Regulations, Sections 7.040 and 7.070.

Flares constructed prior to January 1, 2000, must comply with *Guide 60* requirements by December 31, 2004.

If the facility handles waste containing more than 10 mol/kmol H_2S or is located in a sensitive area, it has a vapour recovery system, in accordance with the OGC Regulations.

All hydrocarbon liquid storage tanks vented to a flare system are equipped with a flame arrester or equivalent safety devices, as per OGC Regulations, Section 8.090(7).

7. ID and warning signs

Identification and warning signs conform to the OGC Regulations, Section 6.020 and Schedule 12 (see Appendix 6). The sign at the entrance identifies the facility name, operator name, emergency phone number, and legal description. At landfills, additional information is required. See *Guide 58*, Section 15.6(2)(s).

8. Fencing/security

A perimeter fence is installed to prevent public and wildlife access.

9. Emissions

Possible sources of odorous emissions that could be hazardous and/or a nuisance to the public are identified and controlled so that odours do not migrate off lease.

Any burning conforms to the OGC Regulations, Section 7.040. There is no significant or visible emission of smoke.

10. Housekeeping

Waste material such as garbage or barrels is properly secured and disposed of, as outlined in the OGC Regulations, Section 8.150(1)(2) and in *Guide 58*.

Oil stains are cleaned up and the facility is kept clean.

Vegetation control is maintained.

11. Noise levels

Noise levels are not excessive and do not exceed provincially set levels. (Noise level standards are outlined in *ID 99-8*.) Normally, noise levels are monitored as a result of a public complaint or where a problem is suspected.

12. Spills

Any hydrocarbon, saltwater, or waste spill off lease (including pipeline) or any spill on lease in excess of 2 m^3 is reported to the EUB in accordance with the OGC Regulations, Section 8.050, and *IL 98-1*.

Immediate steps are taken to contain and clean up spills of any size.

Spills of refined products on or off lease are contained and cleaned up in accordance with the guidelines of the Pollution Control Division of Alberta Environment (see EUB *IL 98-2* for more information).

The landowner is advised of any spills off lease or significant spills on lease and the company is adequately addressing all concerns.

13. Adherence to Board approvals

Modifications to the facility that affect operations, process, capacity, measurement, or environmental impact require prior EUB approval. The EUB Compliance and Operations Branch, Operations, Waste Section, must be advised of any such changes.

The facility is constructed and operated within the requirements of the facility's current approval/licences.

All applicable licences/approvals are available at each facility.

14. Corporate ERP

A corporate emergency response plan (ERP) is on site. This plan describes appropriate measures to follow in the event of any emergency. See *ID 91-2* for more detail regarding preparation of an ERP.

15. Record keeping

Licensee retains copies of all dockets for materials received and shipped for a minimum of two years.

If applicable, licensee retains groundwater and leachate monitoring information for a minimum of five years.

Manifests —Part A (Generator), Part B (Transporter), and Part C (Receiver) are sufficiently completed and signed.

Internal waste tracking — A method of tracking the waste management facility operator's produced waste is in place. Records are available for the last two years.

Specific reporting and record-keeping requirements are noted in *Guide 58*, Sections 11.8, 12.4, 14.4, 15.10, 16.35, and 17.2.8. *Guide 55*, Section 10, includes additional record-keeping requirements.

16. Surface run-on/runoff

Facilities require suitable diking to prevent surface water run-on.

Surface water runoff is controlled, field tested, and disposed. Criteria stipulated in the approval and/or *Guide 55*, Section 5.2.2, are met prior to release of any surface water to adjacent lands.

Improper use of sterilants and any adverse effects related to its use are the responsibility of Alberta Environment (AENV). The appropriate AENV regional office is advised if a problem exists.

Inspection items 17-27 are specific to EUB *Guides 51, 55,* and *58* and to production accounting. In particular, item 19 applies to a facility's own internal waste management (garbage, filters, lube oil, etc.). Inspection items common to most waste facilities or related to handling a generator's waste product are noted in previous inspection boxes.

17. Injection/disposal well requirements (*Guide 51*)

Guide 51 items are specific to injection and disposal wells associated to the waste management facility.

The EUB's regulatory responsibilities focus on issues related to

- wellbore integrity to ensure initial and ongoing containment of the disposed fluid, and
- suitability of the waste stream for deep-well disposal, having regard for the nature of the fluid, the integrity of the well, and alternative waste management options.

The following waste streams are prohibited from disposal by subsurface injection:

- municipal or industrial sewage
- surface runoff water that meets surface discharge criteria or can meet surface discharge criteria without cost-prohibitive treatment
- lube oils and spent solvents
- diesel invert drilling fluids
- wastes where appropriate treatment technology exists

Well classifications (see *Guide 51,* Section 2.4, for specifics):

- Class IV — Well used for injection into a reservoir matrix of potable water with no anticipated conversion to produced water, steam from potable water, or recycled water.
- Class III — Well used for the injection of hydrocarbons or inert or other gases for the purpose of storage or enhanced recovery.
- Class II — Well used for the injection or disposal of produced water (brine) or brine-equivalent fluids.
- Class Ib — Well used for the disposal of produced water, specific common oilfield waste streams, and waste streams meeting specific criteria.
- Class Ia — Well used for the disposal of oilfield or industrial waste fluids.

18. Storage requirements (*Guide 55*)

Guide 55 items note all storage requirements pertinent to a waste management facility, whether it be its own or a customer's product.

Appropriate material and waste storage is in accordance with *ID 95-3* and *Guide 55*. Aboveground tank, underground tank, container, storage facilities, bulk pad storage, and inspection, monitoring, record-keeping requirements for those materials

produced, generated, or used by the upstream petroleum industry are under EUB jurisdiction.

Operators of facilities constructed and operated prior to January 1, 1996, are required to demonstrate that their storage practices, facilities, and containment devices meet the requirements of *Guide 55*.

All facilities constructed after January 1, 1996, meet the requirements of *Guide 55*.

All tanks aboveground and underground must be inspected and/or tested prior to October 31, 2001. Operators have until October 31, 2001, to meet the storage provisions for containers, oilfield waste storage facilities, and bulk pads. See *Guide 55,* Appendix 1, for more details.

See Appendix 7 in this guide for a summary of general storage requirements (*Guide 55*, Table 2). For further details, consult *Guide 55*.

Double-walled aboveground storage tanks with a combined volume equal to or greater than 5 m^3 are an acceptable alternative to single-walled tanks with secondary containment providing the following conditions are met:

- The interstitial space between the primary and secondary containment systems must be monitored continuously.
- Protective guards or barriers are installed around the tank.
- High-level liquid detection and automatic shutoff devices are installed to prevent overflow. Automatic shutoff system must be tested monthly and documentation kept on file.

Operators must have prior approval from the EUB Operations Groups to use double-walled tanks until such time as *Guide 55* is revised.

19. Waste management (*Guide 58*)

Appropriate management of oilfield wastes is in accordance with *ID 96-3* and *Guide 58* as they apply to all oil and gas, oil sands, and oilfield waste management facilities under EUB jurisdiction. Appropriate management as it pertains to this manual includes generator and receiver responsibilities, importation, characterization/ classification, manifesting and tracking, storage/transfer facilities, and disposal.

The oilfield waste generator (i.e., EUB licensee and/or approval holder) is responsible for ensuring that the requirements of *Guide 58* are followed, including

- properly characterizing and classifying oilfield wastes
- utilizing appropriate treatment and disposal practices

- understanding the capabilities and limitations of the methods selected for the treatment and/or disposal of wastes
- maintaining accurate and complete waste documentation and manifests
- informing waste carriers and receivers of the properties of their oilfield wastes
- ensuring that operational requirements have been satisfied and, if applicable, required approvals are in place for any on-site waste handling, treatment, and disposal method

20. Waste storage/transfer specific

This includes inspection items in *Guide 58*, Part D, Section 12, that are specific to these stand-alone facilities.

21. Waste processing/cavern specific

This includes inspection items in *Guide 58*, Part D, Section 14, that are specific to these stand-alone facilities. Note that caverns are typically approved as disposal wells. In cases where waste streams are injected into the cavern for purposes of separation and oil recovery, approval is also required as a waste processing facility.

22. Waste disposal well surface facility

This includes inspection items in *Guide 58*, Part D, Section 13, that are specific to these facilities. These items cover the surface facilities receiving upstream oilfield wastes prior to deep well injection, excluding metering and injection well specifics. Surface facilities used for the receipt of upstream and industrial wastes must be approved by AENV.

23. Landfill specific

This includes inspection items in *Guide 58*, Part D, Section 15, that are specific to these facilities.

ID 99-4: Deposition of Oilfield Waste into Landfills details hydrocarbon and chloride criteria for the disposal to Class II landfills, depending on landfill design criteria.

See Appendix 8 for a summary table of landfill classifications and characteristics and *Guide 58*, Section 15.7, for detailed information regarding landfill features.

Class Ia and Ib landfills can accept solid oilfield waste, both dangerous and nondangerous, provided the waste criteria in *Guide 58*, Section 15.8, are met. Note that design criteria for each are different.

Class II landfills can accept only nondangerous solid oilfield waste.

Class III landfills can accept only nondangerous, chemically inert, and nonleachable solid oilfield wastes.

24. Biodegradation facility specific

This includes inspection items in *Guide 58*, Part D, Section 16, that are specific to these facilities.

25. Thermal treatment facility specific

This includes inspection items in *Guide 58*, Part D, Section 17, that are specific to these facilities.

26. Other waste management technology/facility

This applies to other EUB-approved waste management facilities designed or operated with technology not covered in previous categories.

27. "S" statements

The necessary "S" statements are being completed:

- S-18 for well disposal
- S-24 for central treating facility
- S-25 for waste management facility

Review S-18 and S-25 for accuracy.

Enforcement

28. Remedial action required

Enter "Y" (yes) if unsatisfactory items are noted that require remedial action. Enter "N" (no) if remedial action is not required and the inspection is considered satisfactory.

If remedial action by the operator is required, refer to the Enforcement Ladder (*IL 99-4*, Appendix 1) for appropriate enforcement consequences.

29. Letter to operator required

Enter "Y" (yes) if a letter to the company is required. Enter "N" (no) if a letter is not required. Minor deficiencies recorded during an inspection do not require a letter to be sent.

30. Facility suspended

Enter "Y" (yes) if the facility is being partially or fully suspended as a result of noncompliance. Enter "N" (no) if the facility is not suspended.

31. Records review of operator compliance

Enter "Y" (yes) if the records (e.g., previous inspections, "S" statements, Corporate Compliance Database) were reviewed prior to the inspection. Enter "N" (no) if records were not reviewed prior to the inspection.

C Remarks and Comments

Clearly define each inspection item(s) marked unsatisfactory (U, M, or S) on the check sheet in the Remarks and Comments section.

Give written instructions that identify noncompliance items, expected action, and the deadline date for compliance. Consequences of future noncompliance are recorded in the Enforcement Action box to the right.

Note and report any modifications that may require approval, as well as any unusual circumstances or operating problems, to the Compliance and Operations Branch, Waste Section.

Deadline date

Enter the date by which the necessary work detailed under Remarks and Comments must be completed.

Operator's name

Enter the operator's name, phone number, and fax number, including area codes.

Inspector's Name

Enter the inspector's name, phone number, and fax number, including area codes.

2.3 Submission of Check Sheet (3 copies)

Give the operator a copy of the completed check sheet (white copy).

File the completed Oilfield Waste Management Facility Check Sheet with the Field Centre (yellow copy) for database entry.

Send a copy of the check sheet (pink copy) and any deficiency correspondence to Compliance and Operations Branch, Waste Section.

Appendix 1 IL 99-4: EUB Field Surveillance Enforcement Process and Ladder

IL 99-4

8 June 1999

To: All Operators and Companies Regulated by the EUB

EUB ENFORCEMENT PROCESS,
GENERIC ENFORCEMENT LADDER, AND
FIELD SURVEILLANCE ENFORCEMENT LADDER

INTRODUCTION

The EUB has adopted an enforcement process, which establishes guidelines for EUB enforcement actions when dealing with regulatory non-compliance. Implementation of this enforcement process together with surveillance activities will safeguard the integrity of the EUB's other core functions; Adjudication and Regulation, Applications, and Information and Knowledge.

Initial enforcement is determined by the severity of the non-compliance and is escalated for repeated non-compliance or failure to respond. No new regulations are proposed. This enforcement process will:

- improve EUB staff consistency, efficiency, and effectiveness
- result in increased public safety, minimize environmental impacts, and improve conservation
- help create a level regulatory playing field for industry, and
- improve EUB and industry accountability.

Companies failing to meet requirements or follow EUB direction will be subject to escalating enforcement consequences. The required response to EUB direction and subsequent continued compliance with regulations will result in the company's compliance status reverting back to satisfactory. ***Therefore, it is imperative that all companies regulated by the EUB fully understand enforcement consequences and have internal corporate processes in place to ensure that EUB regulatory compliance requests are acted upon.***

ENFORCEMENT LADDERS

Attached are two new enforcement ladders, which detail the new EUB enforcement process. These ladders consist of three categories for initial non-compliance items – Minor, (lowest), Major, and Serious (highest). EUB staff will defer to the lower category if in doubt about where to rate a non-compliance event. The steps within the Enforcement Ladders represent an initial consequence and subsequent escalation for repeat regulatory non-compliance or failure to respond to EUB regulatory compliance requests.

The first is a Generic Enforcement Ladder designed to:

- guide EUB enforcement actions (after 1 August 1999) in situations where there is no specific ladder in place, and
- provide a foundation and framework to develop specific EUB enforcement ladders as required.

The second is a Field Surveillance Enforcement Ladder, focussing on field inspections of upstream oil and gas operations. The Field Surveillance Enforcement Ladder will be implemented on 1 August 1999 and the EUB will continue to update field inspection manuals to better define Minor, Major, and Serious items.

POLICY

The EUB will not normally apply additional enforcement consequences when a company voluntarily identifies a non-compliance issue/event to the EUB and is employing the proper resources and effort to remedy the problem. However, the EUB reserves the right to escalate non-compliance issue(s) to any level should conditions warrant. Companies that do not agree with expectations or consequences outlined by an EUB staff member must initially contact that staff member for resolution. If a resolution cannot be achieved, the company can contact the Enforcement Advisor of the EUB's Corporate Compliance Group. Additionally, any affected party may apply for a hearing.

This Informational Letter is consistent with the EUB's commitment to reduce unnecessary requirements, and to actively enforce those requirements considered necessary. The EUB will formally review and make necessary changes to these ladders two years from the date of this Informational Letter. Additionally, the EUB will consult representatives from the Utilities and Coal industries regarding enforcement ladder design and implementation.

The EUB wishes to thank members of the public, CAPP, SEPAC, individual companies, and internal staff who contributed to the development of these ladders.

Questions regarding this Informational Letter should be directed to:

EUB Facilities Division
Corporate Compliance Group
640 - 5 Avenue SW
Calgary, Alberta T2P 3G4
(403) 297-4490 or 297-3531

Neil McCrank, Q.C.
Chairman
Attachments

IL 99-4—Clarification

February 24, 2000

To: All Operators and Companies Regulated by the EUB

EUB ENFORCEMENT PROCESS—CLARIFICATION

Purpose
This document summarizes and clarifies the specific conditions under which companies may move off of the EUB enforcement ladders from the various levels. Although this information is contained in the text of *IL 99-4: EUB Enforcement Process, Generic Enforcement Ladder and Field Surveillance Enforcement Ladder*, a number of questions have been raised respecting "How do I get off the enforcement ladder?" As a result, the EUB believes it is appropriate to provide this additional explanation.

Basic Principles
IL 99-4 describes the escalating enforcement ladder concept and the importance for companies to be compliant with requirements at all times. If a non-compliance does occur and the EUB places a company on an enforcement ladder, it is critical to the company that it meet specified conditions to get off of the enforcement ladder and stop the process of escalating enforcement. Once the company is off of the enforcement ladder, the EUB handles any subsequent non-compliance event as if it were the company's first such event.

Specific Conditions for Each Level to Get Off of the Enforcement Ladder
The following table outlines the original cause of being placed on a particular level and the corresponding conditions that must be met to move off of the enforcement ladders:

Cause of level-1 non-compliance	The following condition must be met to achieve compliance (i.e., to get off of the enforcement ladder)
Initial minor non-compliance	Remedy the original non-compliance issue

Causes of level-2 non-compliance		The following conditions must be met to achieve compliance (i.e., to get off of the enforcement ladder)
Failure to respond to level 1	Initial major non-compliance	
x	x	Remedy the original non-compliance issue
x	x	Identify the cause
x	x	Self-identification and remedy of similar non-compliant situations
x	x	Provide a prevention plan to the EUB work group
		AND (whichever occurs first)
	x	3 consecutive inspections or audits with no major non-compliances in the same EUB work group or inspection category **OR**
	x	12 months (from notification date of enforcement action) with no further major non-compliance in the same EUB work group or inspection category

Causes of level-3 non-compliance			The following conditions must be met to achieve compliance (i.e., to get off of the enforcement ladder)
Failure to respond to level 2	Initial serious non-compliance	2nd major non-compliance	
x	x	x	Remedy the original non-compliance issue
x	x	x	Identify the cause
x	x	x	Self-identification and remedy of similar non-compliant situations
x	x	x	Provide a prevention plan to the EUB work group
			AND (whichever occurs first)
	x		12 months (from notification date of enforcement action) with no further serious non-compliance in the same EUB work group or inspection category **OR**
		x	12 months (from notification date of enforcement action) with no further major or serious non-compliance in the same EUB work group or inspection area **OR**
		x	3 consecutive inspections or audits with no major or serious non-compliances in the same EUB work group or inspection category

Causes of level-4 non-compliance		The following conditions must be met to achieve compliance (i.e., to get off of the enforcement ladder)
2nd serious non-compliance within 12 months	Failure to respond to level 3	
x	x	Remedy the original non-compliance issue
x	x	Satisfy the EUB work group that the non-compliance will not occur again if it initially was a major or serious non-compliance
x	x	Satisfy EUB Corporate Compliance that the company has determined and corrected the problem(s) within the company that resulted in the enforcement action being escalated to level 4 in order to achieve compliance
x	x	Satisfy EUB Corporate Compliance that the company fully understands enforcement consequences and has internal corporate processes in place to ensure that EUB regulatory compliance requests are acted upon within the given time frames
Note: A company at level 4 must meet both level 3 and 4 conditions to be completely off of the enforcement ladders (i.e., you move from Level 4 to Level 3 and off of the Enforcement Ladder).		

As previously stated, the EUB will formally review and make necessary changes to the ladders starting in July 2001. Please refer to *IL 99-4* or the EUB Web site at www.eub.gov.ab.ca under EUB Enforcement for further information.

Direct questions about this informational letter to
EUB Compliance and Operations Branch
Corporate Compliance Group
640 – 5 Avenue SW
Calgary, Alberta T2P 3G4
(403) 297-4490 or (403) 297-3531

Neil McCrank
Chairman

IL 99-4 Field Surveillance Enforcement Ladder Attachment

EUB FIELD SURVEILLANCE ENFORCEMENT LADDER
FOR INDUSTRY NON-COMPLIANCE

Licensees and/or operators of wells/facilities/pipelines in Alberta are responsible to ensure their operations are conducted in accordance with all provincial requirements. However, in certain situations, enforcement of regulations where non-compliance takes place will be required.

One of the core business functions of the Energy and Utilities Board (EUB) is to maintain and enhance a surveillance and enforcement process that ensures public safety, minimizes impacts to the environment and improves conservation of resources. This process is designed for all EUB stakeholders to ensure they are aware of and understand the Board's enforcement philosophy and consequences for non-compliance. The Board believes this process will assist in reducing non-compliance issues and creates lasting improvements.

The following enforcement consequences for non-compliance have been adopted by the EUB to ensure that regulatory requirements are met and operators are treated in a similar fashion. The consequences are based on an escalation of enforcement action that is timely, effective, and appropriate to the severity of the situation. The EUB inspection selection criteria is primarily based on operator performance, sensitivity of the area (environmental), and inherent risk (potential impact level). This process will ensure that operators with a non-compliant inspection history will be inspected on a more frequent basis than operators in good standing.

Consequences will only occur when operators fail to meet requirements and/or regulations and will not escalate to a higher severity unless the operator fails to address EUB requirements/ requests. The company's consequence level will revert back to satisfactory after 3 consecutive satisfactory inspections or a 12 month time period with no major unsatisfactory inspections in the same inspection category (e.g., oil, gas, drilling). Operators that inform the EUB of non-compliance will not normally be penalized and additional consequences will not be applied when a company is demonstrating that it is employing the proper resources and effort to remedy the problem.

The attached enforcement actions have been developed with the understanding that the EUB will do an extensive review of all existing inspection manuals to clearly define what constitutes a minor, major, or serious unsatisfactory inspection item(s). These definitions are outlined in the attached enforcement ladders.

Licensees and operators should contact the EUB Field Surveillance Group with any questions or concerns regarding EUB requirements, inspections, and/or enforcement actions.

THE EUB RESERVES THE RIGHT TO ESCALATE NON-COMPLIANCE ISSUE(S) TO ANY LEVEL SHOULD CONDITIONS WARRANT.

Minor Non-Compliance Issue/Item

A minor unsatisfactory event/inspection is defined as a contravention of regulation(s)/requirement(s) which does not result in a direct threat to the public and/or the environment and does not adversely effect oil and gas operations. Examples of minor non-compliance are:

- well/facility/pipeline identification sign(s) are not posted or are inadequate
- valve handle(s) missing on kill or bleed off line
- oil or salt water staining on lease
- required calibration tag not attached to measurement device

Minor Non-Compliance Enforcement Ladder

Inspection Result	Action	Communication
Level One		
Initial minor unsatisfactory item or inspection result.	• Company instructed to take corrective action at a specific location(s) and/or operation(s). • Company instructed to confirm corrective action (verbally or in writing).	• EUB Field Centre staff provides instructions and/or copy inspection form/letter to local company representative. • The written communication must confirm non-compliance item(s), expected action, deadline date, and consequences for future non-compliance (see Level Two). • EUB Field Centre staff must notify impacted residents of event and resolution(s).
• The EUB will not normally schedule reinspection of wells/facilities/pipelines where minor non-compliance items were noted. It will, however, monitor operator performance on a provincial basis and will escalate consequences for persistent minor non-compliance. • The EUB will take the appropriate on-site action for future non-compliance at this facility but will not escalate consequences to Level Two for 30 days after the company has been instructed to take corrective action.		
Level Two		
Failure to take action required in Level One	• Company instructed to take corrective action. • Company must explain why EUB directive not followed and provide written acceptable action plan, which ensures EUB directives are followed in the future.	EUB Field Centre staff with Team Leader approval provides written instructions to local company representative. EUB Field Centre staff sends letter to senior company representative with provincial authority confirming non-compliance item(s), expected action, inspection history, deadline date, and consequences for future non-compliance (see Level Three). EUB Field Centre staff must notify impacted residents of event and resolution(s).
• The EUB will take the appropriate on-site action but will not escalate to Level Three until 15 days after sending letter to senior company representative with provincial authority.		

Minor Non-Compliance Enforcement Ladder (cont'd)

Inspection Result	Action	Communication
Level Three		
Failure to take action required in Level Two.	• Full or partial suspension of operations when safe to do so. See next page for criteria. • Company instructed to take corrective action. • Company must explain why EUB directive not followed and provide written acceptable action plan, which ensures EUB directives are followed in the future. • Operations will remain suspended until non-compliance is remedied, EUB accepts written action plan, and written approval is received from Field Centre staff. • Operations will also remain suspended until such time as a documented meeting/discussion with senior company representative with provincial authority (VP/Pres) is held. • Add the non-compliance event to the EUB Corporate Data Information System (CDIS).	• EUB Field Centre staff with Team Leader approval provides written instructions to local/on-site company representative to suspend operations (full or partial). • Notification to EUB Division Leader and Board of controversial situations or large impact to the company or potential for media coverage. • EUB Field Centre staff with Team Leader approval sends a letter to senior company representative with provincial authority confirming inspection history, non-compliance item(s), on-site action taken, further expectations/deadline date, and escalating consequences for future non-compliance (see Level Four). • EUB Field Centre staff advises Field Surveillance Management Team and Corporate Compliance Group. • EUB Field Centre staff must notify impacted residents of event and resolution(s).
Level Four		
Failure to take action required in Level Three	• Immediate suspension (full or partial) of operations when safe to do so. • Corporate Compliance requested to take appropriate enforcement action, which could include closure order for suspension or miscellaneous order and "refer status" for future applications. • Suspension will remain in effect until documented meeting with senior company representative with provincial authority (VP/Pres) is held. • Company also confirms compliance at this and all similar facilities and submits a written acceptable action plan including examination of cause and future prevention plans and commitments.	• EUB Field Centre staff with Team Leader approval provides written instructions to local/on-site company representative to suspend operations (full or partial). • EUB Field Centre staff advises Field Surveillance Management Team, Corporate Compliance Group, and Board of suspension. • EUB Field Centre staff and Corporate Compliance send letter and closure order to senior company representative with provincial authority confirming the non-compliance history and on-site action required. • EUB Field Centre staff must notify impacted residents of event and resolution(s).

Persistent Non-Compliance

Companies that clearly exceed the minor unsatisfactory industry average as evidenced from EUB inspection statistics will be dealt with by the EUB Provincial Coordinator for that inspection category (e.g., oil, gas, drilling). A letter will be sent requiring the company to submit a written acceptable action plan, including examination of cause and future prevention plans and commitments. This letter will also outline future expectations and deadline date. Should future EUB inspections indicate that the company has failed in their commitments, consequences may be elevated to third party inspections at the company's expense and/or full or partial suspensions as directed by the EUB.

These definitions apply to Minor Non-Compliance only:

The EUB staff will determine which wells or portions of facilities that are to be suspended.

1) **Partial Facility Suspension**

Facility Production
Hydrocarbon liquids (or gas equivalent)
$<50m^3$/day = Full Suspension
$>50m^3$/day = 25 per cent Suspension

2) **Full Facility Suspension**

Facility can produce only sufficient fuel gas for heating purposes.

Major Non-Compliance Issue/Item

A major unsatisfactory event/inspection is defined as a contravention of regulation(s)/requirements(s) that an operator has failed to address and/or has the potential to cause an adverse impact on the public and/or the environment. Examples of major non-compliance are:

- blowout preventer failed to operate properly
- tank vapour recovery unit not functional allowing H_2S to vent
- unaddressed spill on or off lease
- no crossing agreement on pipeline construction

Major Non-Compliance Enforcement Ladder

Inspection Result	Action	Communication
Level Two		
Initial major unsatisfactory item/inspection result	• Company instructed to take corrective action at subject site and ensure compliance at all similar facilities (e.g. wells, production facilities, and pipelines). • Temporary suspension of certain operations may be necessary to correct deficiencies and alleviate impact or potential impact. • Company must provide documented action plan to ensure issue/event does not reoccur.	• EUB Field Centre staff provides written instructions to local/on-site company representative. • EUB Field Centre staff with Team Leader approval sends letter to senior company representative with provincial authority confirming inspection history, non-compliance item (s), on-site action taken, expected future action, deadline date, and consequences for future non-compliance (see Level Three). • EUB Field Centre staff must notify impacted residents of event and resolution(s). • Notification to EUB Division Leader and Board of controversial situations or large impact to the company or potential for media attention.
• The EUB will take the appropriate on-site action for future non-compliance at this or other facilities but will not escalate consequences to Level Three on a provincial basis for 30 days after company instructed to take corrective action. • The company's consequence level will revert back to satisfactory after 3 consecutive satisfactory inspections or a 12-month time period with no major unsatisfactory inspections in the same inspection category (e.g., oil, gas, drilling).		
Inspection Result	**Action**	**Communication**
Level Three		
Failure to take action required in Level Two and/or a second major non-compliance in the same inspection category on a provincial basis.	• Full or partial suspension of operations to alleviate impact or potential impact when safe to do so. • Company instructed to take corrective action. • Company must explain why EUB directive not followed and provide written acceptable action plan, which ensures EUB directives are followed in the future. • Company also confirms in writing that this and all similar facilities are in compliance. • Operations will remain suspended until non-compliance is remedied, EUB accepts written action plan, and written approval is received from Field Centre staff. • Operations will also remain suspended until such time as a documented meeting/discussion with senior company representative with provincial authority (VP/Pres) is held. (cont'd)	• EUB Field Centre staff with Team Leader approval provides written instructions to local/on-site company representative to suspend operations (full or partial). • Notification to EUB Division Leader and Board of controversial situations or large impact to the company or potential for media coverage. • EUB Field Centre staff with Team Leader approval sends a letter to senior company representative with provincial authority confirming inspection history, non-compliance item(s), on-site action taken, further expectations/deadline date, and escalating consequences for future non-compliance (see Level Four). • EUB Field Centre staff advises Field Surveillance Management Team and Corporate Compliance Group. • EUB Field Centre staff must notify impacted residents of event and resolution(s).

Major Non-Compliance Enforcement Ladder (cont'd)

Level Three (cont'd)		
	• Add the non-compliance event to the EUB Corporate Data Information System (CDIS).	
• The EUB will take the appropriate on-site action for future non-compliance at this or other facilities but will not escalate consequences to Level Four on a provincial basis until 15 days after sending letter to/or holding a documented meeting with senior company representative with provincial authority. • The company's consequence level will revert back to satisfactory after 3 consecutive satisfactory inspections or a 12-month time period with no major unsatisfactory inspections in the same inspection category (e.g., oil, gas, drilling).		
Level Four		
Failure to take action required in Level Three and/or a third major non-compliance in the same inspection category on a provincial basis.	• Immediate suspension (full or partial) of operations to alleviate issue when safe to do so. • Corporate Compliance requested to take appropriate enforcement action, which could include closure order for suspension or miscellaneous order and "refer status" for future applications. • Suspension will also remain in effect until documented meeting with senior company representative with provincial authority (VP/Pres) is held. • Company also confirms compliance at this and all similar facilities and submits a written acceptable action plan including examination of cause and future prevention plans and commitments.	• EUB Field Centre staff with Team Leader approval provides written instructions to local/on-site company representative to suspend operations (full or partial). • EUB Field Centre staff advises Field Surveillance Management Team, Corporate Compliance Group, and Board of suspension. • EUB Field Centre and Corporate Compliance send letter and closure order to senior company representative with provincial authority confirming the non-compliance history and on-site action required. EUB Field Centre staff must notify impacted residents of event and resolution(s).

Serious Non-Compliance Issue/Item

A serious unsatisfactory event/inspection is defined as a total disregard for regulation(s)/requirement(s) that is causing or may cause a significant impact on the public and/or environment. Examples of serious non-compliance are:

- blowout preventer(s) missing
- unaddressed spill into water, operator aware, no action is being taken
- conducting an activity without an approval and/or licence where required
- H_2S odour present, operator aware, no action is being taken

Serious Non-Compliance Enforcement Ladder

Inspection Result	Action	Communication
Level Three		
Initial serious non-compliance item.	• Full or partial suspension of operations to alleviate impact or potential impact when safe to do so. • Company instructed to take corrective action. • Company must explain why event occurred, provide written acceptable action plan, and ensure issue/event does not reoccur. • Company also confirms in writing that this and all similar facilities are in compliance. • Operations will remain suspended until non-compliance remedied, EUB accepts written action plan, and written approval is received from EUB Field Centre Staff. • Operations will also remain suspended until such time as a documented meeting/discussion with senior company representative with provincial authority (VP/Pres) is held. • Add the non-compliance event to the EUB Corporate Data Information System (CDIS).	• EUB Field Centre staff with Team Leader approval provides written instructions to local/on-site company representative to suspend operations (full or partial). • Notification to EUB Division Leader and Board of controversial situations or large impact to the company or potential for media coverage. • EUB Field Centre staff with Team Leader approval sends a letter to senior company representative with provincial authority confirming inspection history, non-compliance item(s), on-site action taken, further expectations/deadline date, and escalating consequences for future non-compliance (see Level Four). • EUB Field Centre staff advises Field Surveillance Management Team and Corporate Compliance Group. • EUB Field Centre staff must notify impacted residents of event and resolution(s).
• The company's consequence level will revert back to satisfactory after a 12-month time period of no major or serious unsatisfactory inspections in the same inspection category (e.g., oil, gas, drilling).		
Level Four		
Failure to take action required in Level Three and/or a second serious non-compliance in the same inspection category on a provincial basis.	• Immediate suspension (full or partial) of operations to alleviate issue when safe to do so. • Corporate Compliance requested to take appropriate enforcement action, which could include closure order for suspension or miscellaneous order and "refer status" for future applications. • Suspension will also remain in effect until documented meeting with senior company representative with provincial authority (VP/Pres) is held. • Company also confirms compliance at this and all similar facilities and submits a written acceptable action plan including examination of cause and future prevention plans and commitments.	• EUB Field Centre staff with Team Leader approval provides written instructions to local/on-site company representative to suspend operations (full or partial). • EUB Field Centre staff advises Field Surveillance Management Team, Corporate Compliance Group, and Board of suspension. • EUB Field Centre and Corporate Compliance Group send letter and closure order to senior company representative with provincial authority confirming the non-compliance history and on-site action required. • EUB Field Centre staff must notify impacted residents of event and resolution(s).

Summary of Terms

1) Closure Order
A legal document that formally orders the closure of a facility and prevents any further operations from occurring without EUB consent or until the order is rescinded. Issued by the EUB Enforcement Section of the Corporate Compliance Group in accordance with pertinent EUB-related Acts and Regulations.

2) Corporate Compliance Group
Provides EUB-wide enforcement services and support. Located within the Facilities Division of the EUB, consisting of three sections: Enforcement, Liability Management, and Corporate Audit.

3) Corporate Data Information System (CDIS)
CDIS is an internal data system, used to record both a company's corporate data (name, address, phone number, etc.) plus any high-level non-compliance issues involving the company.

4) Demonstrated Disregard
Company knows or should know about a major non-compliance issue/event, but does not act to remedy the issue/event.

5) Measurement
Measurement requirements where the Board has jurisdiction. This measurement may be of oil, gas, water, etc. These products must meet measurement guidelines including installation and calculation(s) of the volumes as per EUB requirements.

6) Miscellaneous Order
A legal document that formally orders a specific action other than closure or abandonment, i.e., clean-up of a spill. Issued by the EUB Enforcement Section of the Corporate Compliance Group with pertinent EUB related Acts and Regulations.

7) Refer Status
A corporate status indicator on the Corporate Data Information System (CDIS) which indicates a company's inability or unwillingness to comply. The status will be considered by the EUB when deciding to approve or deny future and pending applications by the company.

8) Same Inspection Category
Oil and gas operations in specific operating disciplines. Examples of these operating disciplines include drilling, servicing, oil production and processing facilities, gas production and processing as it relates to gas wells, gathering systems, and processing plants, pipelines and associated facilities, injection/disposal facilities, and oilfield waste facilities.

9) Senior Company Representative with Provincial Authority
A company representative who has authority to implement measures provincially on a company wide basis such as the Vice-President or President.

10) Total Disregard
Company knows or should know about a major non-compliance issue/event, but does not act to remedy the issue/event.

11) Unaddressed non-compliance
A non-compliance issue/event that a company is not actively addressing.

Appendix 2 Operational Deficiencies

The **level** of each deficiency is based on the criteria set out in *IL 99-4* (Appendix 1).

Definitions of Unsatisfactory Inspections

- **Minor unsatisfactory event/inspection (U)** — a contravention of regulation(s) or requirement(s) that does not result in a direct threat to the public or the environment and does not adversely affect oil and gas operations.

- **Major unsatisfactory event/inspection (M)** — a contravention of regulation(s) or requirement(s) that an operator has failed to address or that has the potential to cause an adverse impact on the public or the environment.

- **Serious unsatisfactory event/inspection (S)** — a total disregard for regulation(s) or requirement(s) that is having or may have a significant impact on the public or the environment.

The EUB may escalate noncompliance issue(s) to any level should conditions warrant.

Compliance and Noncompliance Results

Inspection results are rated "X" - satisfactory, "U" - minor unsatisfactory, "M" - major unsatisfactory, or "S" - serious unsatisfactory. Items below are numbered in accordance with the Oilfield Waste Management Facility Check Sheet.

1. **Water disposition/measurement**

   U 1. Meter not installed where required and not operated in accordance with the manufacturer's recommended specifications.

   U 2. Water meter not calibrated or not calibrated following repairs (OGC Regulations, Section 14.190).

   U 3. Water meter calibration expired (annual) (OGC Regulations, Section 14.190).

   U 4. Water meter not installed in accordance with Section 14.180 of the Oil and Gas Conservation Regulations.

   U 5. No meter calibration tag affixed to meter (OGC Regulations, Section 14.190).

   U 6. Water meter not operating or not properly in service.

2. **Hydrocarbon disposition/measurement**

   U 1. No hydrocarbon measurement or measurement inadequate.

   U 2. Meter not installed where required and not operated in accordance with the manufacturer's recommended specifications.

U 3. Flow rate through meter not within manufacturer's specifications.

U 4. Dump valve not snap-acting type when meter is required.

U 5. Dump valve leaking.

U 6. Meter not calibrated since installation or repair.

U 7. Meter calibration expired.

U 8. Tank gauging inaccurate.

3. Solids disposition/measurement

M 1. No solids measurement or estimate of volumes inadequate.

4. Inlet waste composition verified

M 1. No waste characterization/sampling of incoming waste stream(s).

U 2. Inaccurate sampling of incoming waste stream(s).

5. Equipment spacing

U 1. Tank to surface improvement, other than roads, less than 60 m.

U 2. Fire less than 50 m from a well.

U 3. Fire less than 50 m from a hydrocarbon liquid storage tank.

U 4. Fire less than 50 m from a source of ignitable vapours.

U 5. Hydrocarbon liquid tank to well less than 50 m.

U 6. Flame-type equipment to well less than 25 m.

U 7. Flame-type equipment to hydrocarbon tank less than 25 m.

U 8. Flame-type equipment to source of ignitable vapour less than 25 m.

U 9. Flame-type equipment without workable flame arrester less than 25 m from a process vessel. (Check to ensure flame arrester has all bolts, is not saturated with oil, is properly fitted, and has gaskets where required.)

U 10. Air intake or flues for a burner inside a building containing a pressure vessel.

U 11. Flare stack less than 25 m from oil or gas processing equipment.

U 12. Flare stack less than 100 m from surface improvement, except roadway.

M 13 Flare stack less than 100 m from an occupied residence.

U 14. Internal combustion exhaust within 6 m of a well, process vessel, or hydrocarbon storage tank, or source of ignitable vapours has flame emergence (OGC Regulations, Section 8.090[9a]).

U 15. Use of a tank heater where it may present a hazard (see Appendix 5).

U 16. Smoking within 25 m of a storage tank, or other source of ignitable vapours.

6. Flare system/vapour recovery

M 1. Flame not present at flare stack when gases directed to flare (*Guide 60*, Section 7.3.1).

U 2. Flare stack height does not conform to requirements (*Guide 60*, Section 7.3.3).

M 3. No liquid knockout installed, or no emergency shutoff device on flare system (*Guide 60*, Section 7.3.5).

M 4. No pilot/ignition device available/operable where gas flow is intermittent (*Guide 60*, Section 7.3.1).

M 5. No flare stack where required (*Guide 60*, Section 1.1).

M 6. No flame arrester on line from tank to flare stack (OGC Regulations, Section 8.090[7]).

M 7. No vapour recovery system where required.

M 8. Vapour recovery system not functioning properly.

7. ID and warning signs

U 1. No identification sign (must include a 24-hour phone number).

U 2. No H_2S sign (H_2S concentration >10 ppm) where required.

U 3. H_2S warning sign at sweet facility (OGC Regulations, Section 6.020).

U 4. Signs do not conform with OGC Regulations, Section 6.020, and Schedule 12 (regarding size or symbol; see Appendix 6).

8. Fencing/security

U 1. No fence, or existing fence is inadequate.

9. Emissions

M 1. Fugitive emissions/odours off lease (nuisance, non-H_2S, H_2S) (*Guide 58*, Section 11.3.2).

U 2. Smoke emissions from facility (*Guide 60*, Section 7.3.8).

S 3. Operator aware of odours/complaint but has taken no corrective action.

10. Housekeeping

U 1. Excessive debris on lease is not controlled.

U 2. Oil or saltwater staining not cleaned up.

U 3. Vegetation poses fire hazard.

11. Noise levels

M 1. Noise levels exceed those outlined in *ID 99-8*.

12. Spills

M 1. Spills on/off lease not adequately controlled and/or cleaned up.

S 2. Unaddressed spill into water.

U 3. Spill not reported to EUB.

U 4. Waste not contained in storage area.

13. Adherence to Board approvals

U 1. Facility not constructed/operating within requirements of approval (identify).

U 2. Modifications made to the facility without prior approval.

S 3. Facility operating without approval.

M 4. Facility receiving wastes other than approved/authorized.

14. Corporate emergency response plan (ERP)

M 1. No corporate ERP.

U 2. Corporate ERP not on site (*Guide 58*, Section 11.3[6]).

U 3. Corporate ERP not updated periodically.

15. Record keeping

U 1. Records of waste received, handled, and disposed not maintained.

U 2. Groundwater monitoring data not maintained.

U 3. Groundwater monitoring data not kept for last five years.

S 4. Groundwater monitoring data indicate contamination; not reported to EUB/AENV.

U 5. Manifests not available for last two years.

U 6. EUB manifests not completed or completed improperly for DOWs transported on public roads (*Guide 58*, Section 7.1); note exemptions (*Guide 58*, Section 8.2).

U 7. Waste manifest discrepancies for internal wastes generated not reconciled by generator (*Guide 58*, Section 8.8).

U 8. Failure to account for wastes disposed by service companies (subcontractors) (*Guide 58*, Section 9.2.2g).

U 9. Internal waste-tracking system not maintained (*Guide 58*, Section 7.1).

U 10. Waste-tracking system not kept for last two years (*Guide 58*, Section 9.2).

U 11. Surface water pump-off records not available (*Guide 58*, Section 10).

M 12. Runoff water not field tested/does not meet criteria/landowner consent not obtained prior to pumping off lease (*Guide 58*, Section 11.6).

U 13. Records of leak detection well sampling not available, insufficient, or not retained at least two years (*Guide 55*, Section 10).

U 14. Alternative leak detection system records for last two years not available or not retained for at least two years (*Guide 55*, Section 10).

U 15. Monthly tank inspection and corrosion monitoring program not available or not retained at least two years (*Guide 55*, Section 10).

16. Surface run-on/runoff control

U 1. Surface water run-on/runoff control not installed where required.

U 2. Surface water run-on control does not prevent water from entering facility.

U 3. Surface water runoff control system not of sufficient size (*Guide 58*, Section 11.6.2).

17. Injection and disposal well requirements (*Guide 51*)

U 1. Surface water that meets the surface discharge criteria disposed to injection/disposal well (Section 2.3).

M 2. Injection pressure exceeds EUB-approved maximum (see operator's approval).

M 3. Disposal/injection well accepting prohibited waste streams (Section 2.3).

M 4. Annual Packer Isolation Test not conducted on class I, II, and III wells (Section 7.2).

U 5. Class Ia well has <500 kPa positive pressure, or alternatively a fluid level detection system on the annulus (Section 8.2).

18. Storage requirements (*Guide 55*)

Note: Compliance deadline date is October 31, 2001, for facilities constructed/operated before January 1, 1996; compliance deadline for containers is October 31, 2001. (See *Guide 55*, Appendix 1.)

U 1. Materials not consumed within two years (Section 3.2).

U 2. Oilfield wastes stored more than one year (Section 3.2).

U 3. Products in temporary storage exceeding three months (Section 3.4).

4. Storage areas/facilities:

U a. Not readily accessible for fire fighting and other emergency procedures.

U b. Located on a floodplain.

M c. Location not chosen to minimize risk of environmental damage, including threats to quality of surface water and groundwater and human, animal, and plant health.

U d. Located within 100 m of normal high-water mark of a body of water, permanent stream, or water well used for domestic purposes (Section 3.5).

U 5. **Aboveground storage tank(s) (AST) >1 m^3 and <5 m^3** not coated or made from weather-resistant material (e.g., plastic/ fibreglass) (Section 5.1).

6. **Aboveground storage tank(s) (AST)** with a total internal volume **equal to or greater than 5 m^3 (note exception**: not applicable to tanks storing water meeting surface discharge criteria [Section 5.2] or other fluids that are stored infrequently **and** emptied immediately):

U a. Steel tank(s) not externally coated (Section 5.2.1).

M b. No tank dike where required.

U c. Liner not installed (Section 5.2.2) on facility constructed after January 1, 1996.

U d. Leak detection system not installed or installed incorrectly.

M e. Surface runoff water collected within the secondary containment system not field tested/does not meet criteria prior to being released to adjacent lands (Section 5.2.2).

U f. Tank dike(s) deteriorating, developing leaks, or unable to withstand hydrostatic head associated with being full of liquid (Section 5.2.2).

U g. Insufficient tank dike capacity (Section 5.2.2).

U h. Tank dike(s) contains openings (e.g., drains) and not maintained in good condition (Section 5.2.2).

U i. Impervious liner does not cover the dike and the area within the dike, not keyed into the dike walls (Section 5.2.2).

U j. Indoor aboveground storage tank(s) not surrounded by containment device and/or drain and collection tank with capacity at least 110 per cent or 100 per cent of the largest tank plus 10 per cent of the aggregate (total) of all other tanks (Section 5.2.2).

U k. Tank leaking.

U l. Operator cannot demonstrate integrity of tanks or if any material has escaped (Section 5.2.3).

7. **Underground storage tank(s)** (regardless of volume)
Note exceptions: Not applicable to tanks storing water meeting surface discharge criteria, other fluids stored infrequently **and** emptied immediately, or systems collecting wash waters from floor drains (Section 6.0).

Underground tanks at sites that exhibit low-permeability soil conditions and a seasonally high groundwater table not within 1 m of the bottom of the tank do no require secondary containment but still require leak detection (Section 6.2).

U a. No leak detection and secondary containment (see exceptions above) (Section 6.0).

U b. Steel tank(s) not cathodically protected and externally coated (Section 6.1).

U c. Tank loading/unloading areas not designed to contain spills or leaks (Section 6.1).

U d. Tank breathing vents not designed to prevent overflow of fluids (Section 6.1).

U e. Operator cannot verify integrity of tank(s) and demonstrate tanks are not leaking (Section 6.3).

U f. Monitoring wells associated with weeping tile systems for USTs not sampled monthly.

8. **Storage container(s)** with an aggregate volume >1 m^3:

U a. No secondary containment (dikes, curbs, collection trays) (Section 7.1; exempt until October 31, 2001).

U b. Secondary containment constructed of material that will react with or absorb any material being stored, or has openings (Section 7.1).

U c. Secondary containment less that 15 cm high, or capacity less than the largest container, or less that 15 per cent of the total volume of all containers in the storage area, whichever is greater (Section 7.1).

U d. Insufficient or no weather protection where required (Section 7.3).

9. Inspection and monitoring for storage area/facility at EUB-approved sites:

U a. Leak detection wells associated with secondary containment leak detection systems not sampled annually.

M b. Leak detection system indicates leakage/not reported to EUB.

19. Waste management (*Guide 58*)

U 1. Not accounting for internal wastes generated, treated, stored, and disposed (cradle to grave) (Section 9.0).

M 2. Dangerous oilfield waste (DOW), dangerous waste, and hazardous wastes imported to EUB-approved facilities from outside Alberta. Other wastes (non-DOW) accepted at facility without prior EUB approval (Section 3.0).

M 3. Wastes stored off lease at an unapproved site (Section 11.1).

M 4. Oilfield wastes mixed for the purpose of dilution to avoid regulatory requirements (Section 5.5).

S 5. Banned oilfield wastes injected into pipeline system (Section 6.1).

U 6. Wastes not measured/measured inaccurately (Section 10.1).

7. Small batch feed incinerator on lease:

U a. Not designed in accordance with Section 17.4.3.

U b. Burning wastes other than waste types I, II, III.

U c. Burning other than disposable filters.

U d. Incineration occurring within 1.5 km of any residents or public facility (without EUB approval) (Section 17.4).

8. Mobile thermal treatment unit in operation:

U a. Landowners/residents within 1.5 km not notified at least 30 days prior to commencement of operations.

U b. EUB Field Centre not notified 48 hours prior to commencement of operations (Section 17.5).

M 9. Oily by-product materials applied to agricultural product storage areas, feed lots, or temporary lease roads.

M 10. Oilfield wastes disposed to pipeline without agreement of waste producer, pipeline licensee, and destined refinery (Section 31.2).

20. Waste storage/transfer specific (*Guide 58*, Section 12)

U 1. Waste storage facility receiving wastes from other companies (Section 12.3).

U 2. Waste treatment performed at waste storage facility (Section 12.1).

M 3. No groundwater monitoring program if DOWs stored at waste storage facility or transfer station (Section 12.3).

U 4. Groundwater monitoring wells not protected from damage or not locked.

21. Waste processing/cavern specific (*Guide 58*, Section 14)

M 1. Accepting waste from other than upstream petroleum industry or as per EUB approval.

M 2. No groundwater monitoring program.

U 3. Groundwater monitoring wells not protected from damage or not locked.

22. Waste disposal well surface facility (*Guide 58*, Section 13)

M 1. No groundwater monitoring program at class Ia disposal well surface facilities (Section 13.3).

U 2. Groundwater monitoring wells at class Ia facilities not protected from damage or not locked.

U 3. Upstream and downstream fluids at class Ia wells not segregated (Section 13.4).

23. Landfill specific (*Guide 58*, Section 15)

M 1. Landfill receiving municipal, non-upstream petroleum, or other industrial wastes (Section 15.1).

M 2. Liquid oilfield waste disposal to landfill (Section 15.3 and *ID 99-4*).

3. Landfill within:

M a. 300 m of a shore of a natural area permanently containing water.

M b. 300 m of a shore of a man-made surface feature.

M c. Wetlands, critical wildlife habitat, or areas adjacent where natural drainage would flow into wetland or wildlife area.

M d. 100 m of any land subject to slope failure or similarly unsuitable.

M e. 300 m of perimeter of a municipal or community water supply wellhead protection zone (Section 15.5).

U 4. Topography in immediate vicinity other than level to gently rolling (Section 15.5).

U 5. Waste deposited within 100 m of a highway, railroad right-of-way, municipal road, or street (Section 15.5).

M 6. No groundwater monitoring program (Section 15.6[1b]).

U 7. Groundwater monitoring wells not protected from damage/not locked (Section 15.9[4a]).

U 8. Wastes not covered with sufficient soil or approved alternative and/or within time frame (Section 15.6[2c,f]).

U 9. Water accumulation in a trench not removed (Section 15.6[2h]).

U 10. Leachate, contaminated surface water, and contaminated groundwater not collected, treated, and appropriately disposed (Section 15.6[2i]).

11. Salvaged and stockpiled topsoil:

U a. Not located on undisturbed topsoil and affected by the landfill operation.

U b. Used to meet daily cover requirements.

U c. Not contoured, stabilized, and seeded to prevent wind/water erosion (Section 15.6[20]).

U 12. Wastes placed in landfill not quantified (Section 15.6[2p]).

M 13. No program to detect and prevent disposal of dangerous wastes (class II only) or dangerous oilfield wastes and non-inert wastes (class III only) (Section 15.6[2q]).

M 14. Oilfield wastes being burned (Section 15.6[2r]).

U 15. No signs/insufficient information on signs at landfill boundary (Section 15.6[2s]).

U 16. Inadequate litter control (Section 15.6 [2u]).

U 17. Barriers do not control public access and prevent unauthorized vehicular traffic and illegal dumping (Section 15.6 [2v]).

U 18. Wastes deposited between property line and designated boundary of the landfill (Section 15.6[2w]).

Class Ia oilfield landfill (specific):

M 19. Accepting other than solid oilfield waste (DOW and non-DOW) (Section 15.7[2]).

U 20. Two liners, one of which is geosynthetic, not installed (Section 15.7[1a]).

U 21. No leachate collection/removal above primary liner (Section 15.7[1c]).

U 22. No leak detection system between two liners Section 15.7[1d]).

Class 1B oilfield landfill (specific):

M 23. Accepting other than solid oilfield waste (DOW and non-DOW) (Section 15.7[2]).

M 24. No primary containment (Section 15.7 [2a]).

U 25. No leachate collection/removal above primary liner (Section 15.7[2c]).

Class II oilfield landfill (specific):

M 26. Accepting other than nondangerous solid oilfield waste (Section 17.5[3]).

M 27. No primary containment (Section 15.7a).

28. Class II landfill groundwater monitoring wells:

U a. Not at least 20 m inside property boundary.

U b. Not between 10 and 60 m from the designed boundary (Section 15.6[2n]).

Class III oilfield landfill (specific):

M 29. Accepting other than nondangerous, chemically inert, and nonleachable solid oilfield waste (Section 15.7[4]).

24. Biodegradation facility specific (*Guide 58*, Section 16.0) — permanent biocell and biopile facilities

U 1. Material not forwarded for further treatment or disposal, or returned to the originating site after remediation (Section 16.3[1]).

M 2. No primary containment device, secondary containment system, leachate collection system, and leak detection system, or, alternatively, no primary containment device, leachate collection system, and groundwater monitoring system (Section 16.3[4b]).

U 3. Leak detection system not sampled monthly (Section 6.3[4.b.iv]).

25. Thermal treatment facility specific (*Guide 58*, Section 17.0) — permanent thermal treatment facilities

U 1. Wastes stored in excess of six months (Section 17.2[4a]).

2. No written operating practices on site for

U a. Receiving, unloading, and segregation (Section 17.2[4a]).

U b. Start-up, shutdown, emergency shutdown (ESD), and other safe work (Section 17.2[4a,b]).

U 3. Automatic alarm system indicating impending upset conditions not installed/not operational (Section 17.2[4d]).

M 4. DOWs mixed with solid or liquid for purpose of dilution to avoid regulatory requirement (Section 17.2[4d]).

M 5. No groundwater monitoring program (Section 17.2[8c]).

U 6. Groundwater monitoring wells not protected from damage or not locked.

26. Other waste management technology/facility

M 1. Not constructed/operated according to approval(s).

27. "S" statements

1. S-18 statement (water disposal):

U a. Metering difference excessive or not reported.

U b. Accounting procedures do not reflect actual field conditions.

U c. Statement not submitted to EUB.

2. S-25 statement (waste facility):

U a. Accounting procedures do not reflect actual field conditions.

U b. Excessive accounting adjustments between receipt and disposition.

U c. Report improperly completed/information missing.

U d. Statement not submitted to EUB.

28. Remedial action required

Enter "Y" (yes) or "N" (no).

29. Letter to operator required

Enter "Y" (yes) or "N" (no).

30. Facility suspended

Enter "Y" (yes) or "N" (no).

31. Records review of operator compliance

Enter "Y" (yes) or "N" (no).

Appendix 3 Completing Inspection Sheets When Handling Complaints

6 January 1999

FROM: Dan Sarnecki, Field Surveillance
TO:FCTLs

pc: Joe Gromley, Red Deer
Larry Paslawski, Drayton Valley
FSMT

FACILITY INSPECTIONS AND COMPLETION OF CHECK SHEETS FOR 1999 – 2000 BUSINESS YEAR

Introduction
Some time ago, I sent a memo to the Field Centres providing clarification on when and when not to complete inspection forms.

Discussion
The direction was initiated because we had no consistency. At present, we have more consistency, but we are not including facility inspections, which quite often are "Major Unsatisfactory."

To correct this matter, the provincial coordinators have asked me to provide further direction to more accurately record what we are finding in the field.

Recommendations
Effective 1 April 1999 (our new business year), complete facility inspection forms when facilities are inspected resulting from complaints, etc.

Mark the inspection "Initial" or "Follow-up" and also check off the "Other" box and identify the reason for inspection (next to this box) if the inspection is complaint driven (e.g., √ OTHER – **complaint driven**).

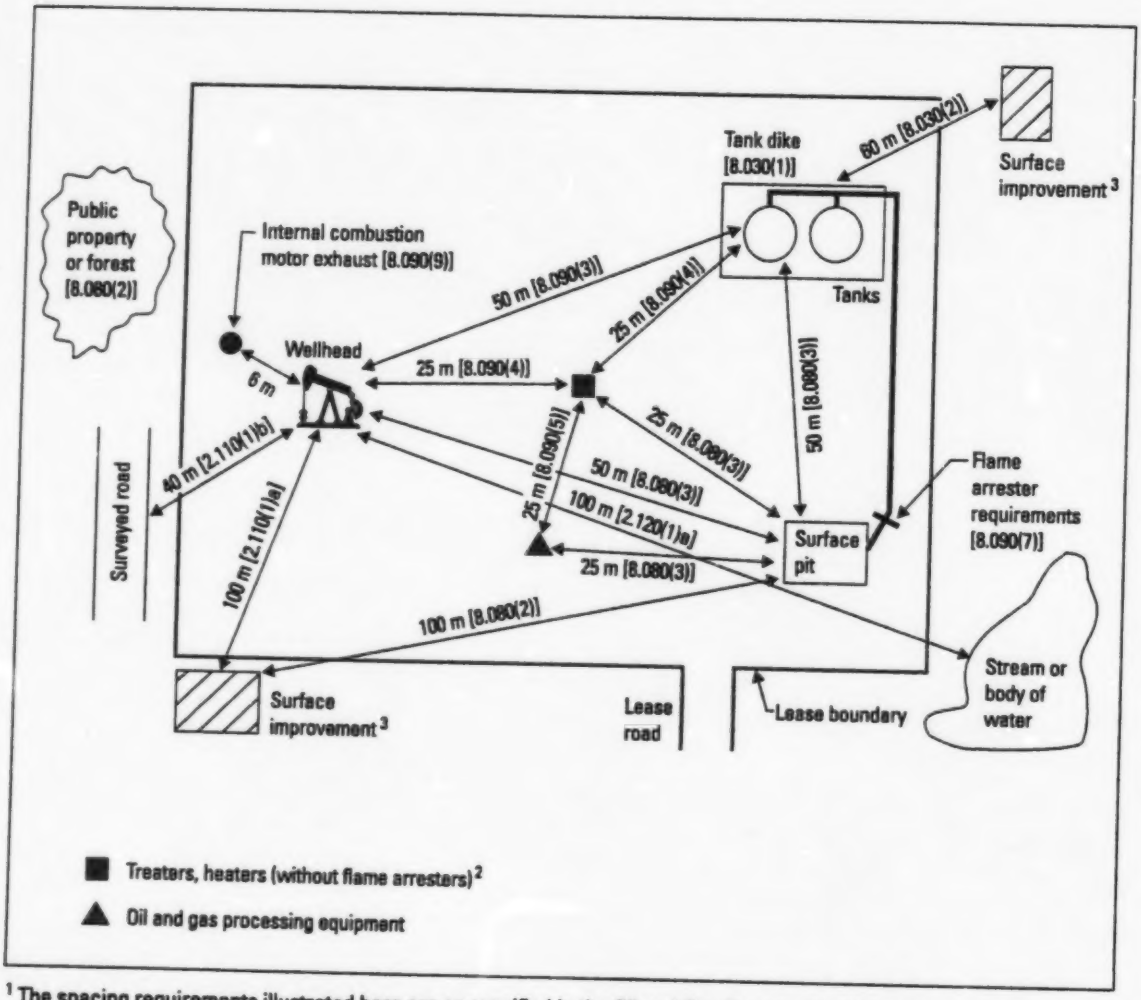
If you are conducting an inspection resulting from a complaint and find the operator working on the problem, please mark the inspection as **satisfactory**. If the operator is not aware of the problem (thereby not working to rectify the situation) mark the inspection as **unsatisfactory**.

In addition, be sure to complete the ENV form where required (e.g., Complaint). If an actual field inspection is **not** conducted, **do not** fill out the facility inspection form. Calling operators requesting them to do an inspection is one example where a facility form should **not** be completed.
In regard to monitoring operator performance, documentation recorded on inspection sheets resulting from complaints will be entered into the PSS system. This record will assist the inspection staff when monitoring operator compliance for enforcement action.

For the quarterly and annual reports, when the PSS inspection review is completed, we will be able to differentiate between inspections conducted as part of routine surveillance and those inspected as a result of complaint follow-up.

If you have any questions or concerns with this change in direction, please contact me at your convenience.

Appendix 4 Equipment Spacing Diagram



[1] The spacing requirements illustrated here are as specified in the Oil and Gas Conservation Regulations sections indicated within square brackets alongside or underneath each measurement.

Note that there is no smoking within 25 m of a well, separator, oil storage tank, or other unprotected source of ignitable vapour [Section 8.120(1)].

[2] Treaters and heaters without flame arresters are not to be housed in the same building unless air intakes, flues, vents, ignitable vapours, etc., are vented outside above roof level and the building is cross-ventilated [8.090(6)a,b,c]. Treaters and heaters with flame arresters must also be 25 m from a well, oil storage tank, or other source of ignitable vapour [8.090(4)].

[3] "Surface improvement" means a railway, pipeline or other right-of-way, road allowance, surveyed roadway, dwelling, industrial plant, aircraft runway or taxiway, building used for military purposes, permanent farm building, school, or church [1.020(1)28].

Appendix 5 Guidelines for the Use of Tank Heaters

The use of tank heaters in heavy oil areas is permitted under the guidelines set out in *ID-91-3: Heavy Oil/Oil Sands Operations.*

The use of tank heaters in conventional oil is not recommended. Generally the EUB discourages the use of heated tanks in place of treaters; however, it must be receptive to considering the economics of a marginal operation. Where the tank heater is proposed or used for oil shipping or to avoid water-freezing problems, inspection staff are expected to use the following criteria in assessing requests for the use of tank heaters:

1) The density of the oil is >800 kg/m^3 (API 45°).

2) The pour point temperature of the oil is -15°C or higher.

3) There is a mandatory flame arrester.

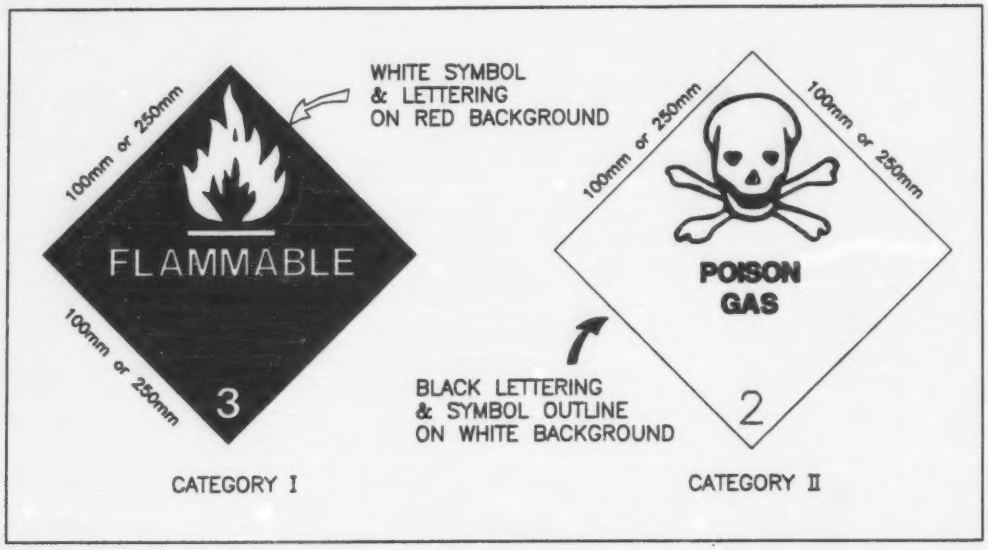
4) The total daily gas volume from the stock tank vented to atmosphere should not exceed 300 m^3. All sources of gaseous vapours, such as thief hatch, load lines, and vent lines, should be directed away from the tank heater.

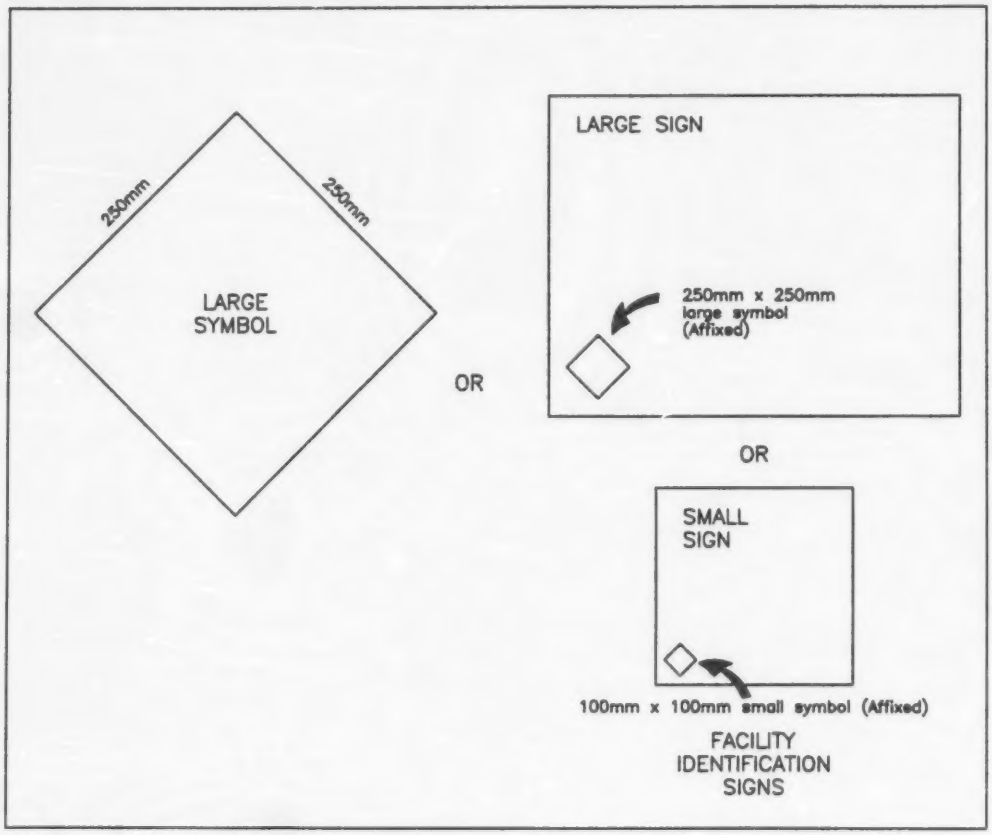
5) The maximum expected temperature of the fluid in the stock tank should not exceed 30°C.

6) Recommend the use of enclosed burner igniters or ensure that suitable burner lighting (start-up) procedures are in place.

Safety is the paramount concern. If there is any reason to believe that the heaters are creating a hazard, they must be disconnected immediately.

Appendix 6 Facility Identification and Warning Signs*





* Schedule 12 in Oil and Gas Conservation Regulations

Appendix 7 Summary Table of General Requirements for Permanent Storage Facilities[1]

Primary containment device/size[2]	Test section[3]	Design and construction	Secondary containment	Leak detection	Weather protection
Aboveground tank (1-5 m^3)[4]	Section 5.1	- Supplier specifications - Non-leaking hoses, fittings, and nozzles	- Not required	- Monthly visual inspection	- External weather protective coating or made from a weather-resistant material
Aboveground tank (>5 m^3)[4]	Section 5.2	- Cathodic protection in corrosive environments - External coating for steel tanks and internal coating in corrosive environments	- Graded containment area - Dike (or curbing for indoor tanks) capacity 110% of tank or 100% plus 10% of aggregate volume if more than one tank - Impervious liner	- Monthly visual inspection - Sand/gravel over liner and leakage collection area - May also include interstitial space monitoring	- External weather protective coating or made from a weather-resistant material
Underground tank[4] (any size; includes tanks, cement vaults, and sumps)	Section 6	- Integrity testing of tank and piping prior to servicing - External coating and cathodic protection for steel tanks - Possible internal coating	Must include one: - double-walled tanks - impervious liner - vaulted tanks	- Liner/monitoring well - Interstitial space monitoring - Monthly visual inspection - Weeping tile system	- Not applicable
Container, group of containers, or aboveground tank (<1 m^3 total)	Section 7	- Not applicable	- Not required	- Monthly visual inspection	- Not required
Container or group of containers (>1 m^3 total)	Section 7	- Compatibility between container and stored materials - Segregated areas	- Dike, curb, and/or collection tray	- Monthly visual inspection	- Physical cover (e.g., covered container or roof) or protective coating
Oily waste storage facility	Section 8	- Specific to facility	- Impervious liner	- Weeping tile - Monitoring well	- Specific to facility and material type
Bulk pad (solid material)	Section 9	- Specific to facility	- Impervious liner - Containment curb or dike	- Specific to material type	- Specific to facility and material type

[1] Applies to new storage facilities constructed and operated after January 1, 1996, for the permanent storage of produced water, crude oil, emulsions, condensates, chemicals, solvents, produced sand, lubricants other than for motor vehicle use, oilfield wastes, coke, oily waste, and bitumen. Maximum storage duration should not exceed two years, except for oilfield wastes, which should not exceed one year. All inventory records and leak detection monitoring results must be kept for two years. See noted test section in *Guide 55* for specific information.

[2] Internal volume.

[3] Section in *Guide 55: Storage Requirements for the Upstream Petroleum Industry.*

[4] Tank requirements apply unless the fluids being stored are waters that meet the surface discharge criteria (chloride <500 mg/litre maximum; pH 6.0 – 9.0; no visible hydrocarbon sheen; and no other chemical contamination) or are fluids that are infrequently stored in tanks and the tanks are emptied immediately.

Appendix 8 Summary Table of Landfill Classifications and Characteristics

Class Ia	Class Ib	Class II	Class III
Solid dangerous and nondangerous wastes	Solid dangerous and nondangerous wastes	Solid nondangerous oilfield waste only	Solid inert waste only
Two liners (at least one synthetic)	One liner (engineered clay or synthetic)	One liner (engineered clay or synthetic)	Waste containment, but no liners required
Leak detection between the liners			
Leachate collection and removal	Leachate collection and removal	Leachate collection and removal	
Groundwater monitoring	Groundwater monitoring	Groundwater monitoring	Groundwater monitoring, only if deemed necessary by EUB
Surface water run-on/runoff control	Surface water run-on/runoff control	Surface water run-on/runoff control	Surface water run-on/runoff control
Suitable hydrogeology	Suitable hydrogeology	Suitable hydrogeology	Suitable hydrogeology

Appendix 9 References and Contacts

EUB Documents*

Internal Guide 8: Safety Manual
Guide 51: Injection and Disposal Wells, Well Classifications, Completion, Logging and Testing Requirements
Guide 55: Storage Requirements for the Upstream Petroleum Industry
Guide 58: Oilfield Waste Management Requirements for the Upstream Petroleum Industry
Guide 59: Well Drilling and Completion Data Filing Requirements
Guide 60: Upstream Petroleum Industry Flaring Guide

ID 91-2: Corporate-Level Emergency Response Plans
ID 91-3: Heavy Oil/Oil Sands Operations
ID 95-3: Storage Requirements for the Upstream Petroleum Industry
ID 96-3: Oilfield Waste Management Requirements for the Upstream Petroleum Industry
ID 99-4: Deposition of Oilfield Waste into Landfills
ID 99-8: Noise Control Directive

IL 96-4: EUB Policy Update and Clarification on the Use of Earthen Pits
IL 98-1: A Memorandum of Understanding between Alberta Environmental Protection and the Alberta Energy and Utilities Board Regarding Coordination of Release Notification Requirements and Subsequent Regulatory Response
IL 98-2: Suspension, Abandonment, Decontamination, and Surface Land Reclamation of Upstream Oil and Gas Facilities
IL 99-4: EUB Enforcement Process, Generic Enforcement Ladder, and Field Surveillance Enforcement Ladder

*EUB documents are available on the EUB Web site <www.eub.gov.ab.ca> or from
EUB Information Services
640 – 5 Avenue SW, Main Floor
Calgary AB T2P 3G4
Tel: (403) 297-8190
Fax: (403) 297-7040

Other Documents

American Petroleum Institute (API) Manual of Petroleum Measurement Standards, Chapter 3.1: Manual Gauging of Petroleum and Petroleum Products (formerly API Standard 2545)

Oil and Gas Conservation (OGC) Regulations

Contacts

EUB Compliance and Operations Branch, Operations, Waste Section: (403) 297-6952
Alberta Environment, Pollution Control Division: 1-800-222-6514
Alberta Human Resources and Employment, Workplace Health and Safety(formerly OH&S): (780) 427-8848
Alberta Municipal Affairs, Safety Services (formerly Electrical Protection): (780) 427-6868